



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

A discussion of all the observations made by the author that are suitable for determination of probable error shows the probable error of a single determination, based on two sets of four settings each on a star, to be ± 0.050 mag.

MT. HAMILTON, July 31, 1905.

PLANETARY PHENOMENA FOR SEPTEMBER AND OCTOBER, 1905.

BY MALCOLM MCNEILL.

PHASES OF THE MOON, PACIFIC TIME.

First Quarter, Sept. 5, 8 ^h 9 ^m P.M. Full Moon, " 13, 10 10 A.M. Last Quarter, " 21, 2 13 P.M. New Moon, " 28, 1 59 P.M.		First Quarter, Oct. 5, 4 ^h 54 ^m A.M. Full Moon, " 13, 3 3 A.M. Last Quarter, " 21, 4 51 A.M. New Moon; " 27, 10 58 P.M.
---	--	---

The Sun reaches the autumnal equinox and crosses the equator from north to south at about 9 A. M. September 23d, Pacific time.

Mercury passed inferior conjunction with the Sun August 29th and became a morning star. At the beginning of September it is still too close to the Sun to be seen, but it moves rapidly away and reaches greatest west elongation September 15th. Its apparent distance from the Sun is then $17^\circ 54'$. This is considerably less than the average, because the planet is then near its perihelion, which it passes a little more than two days later. However, the planet is near a part of the ecliptic which is several degrees north of the Sun's position, and is in the part of its orbit which is north of the ecliptic. The two causes to a large extent compensate for the small elongation, and the planet can be seen in the morning twilight for a fortnight or more about the time of greatest elongation. At that time it rises fully an hour and a half before sunrise, and the interval is more than an hour for a week or so before and after September 15th, the date of greatest elongation.

Venus is a morning star, rising more than three hours before sunrise on September 1st. The interval shortens to less than three hours by October 1st, and at the end of the month it is only a little more than two hours. Since the planet

passed its greatest west elongation in July its apparent distance from the Sun has diminished from 46° to 38° , and this distance suffers a farther diminution to 23° by the end of October. During the two months the planet moves among the stars from *Cancer*, through *Leo* and into *Virgo*, 70° eastward and 23° southward. On the night of September 25-26th *Venus* passes not quite the Moon's apparent diameter south of the first-magnitude star *Regulus*, α *Leonis*; and somewhat later on the same night the Moon passes less than 1° south of the planet. The Moon also occults the star earlier in the night, the occultation being visible from a large part of the United States. The real distance of the planet from the Earth is increasing quite rapidly, being nearly five times as great on October 1st as it was on April 27th, the time of conjunction, and there has been a considerable diminution of brightness, but *Venus* is still the most brilliant object in the early morning sky.

Mars, although it has lost much of the brightness it had at the time of opposition, is still a noticeable object in the southwestern sky in the evening. It sets shortly after 10 P. M. on September 1st, and shortly after 9 P. M. on October 31st. It moves from *Scorpio* to the eastern part of *Sagittarius* about 45° eastward during September and October. In early September it is quite near the first-magnitude red star *Antares*, α *Scorpii*. The time of nearest approach is September 4th; on this date the planet is less than 3° north of the star. During the two months its distance from us in millions of miles increases from 96 to 128, and there is a consequent diminution of brightness of nearly fifty per cent.

Jupiter now rises so that it may be observed as an evening object, at about 10:30 P. M. on September 1st, about 8:30 on October 1st, and before 6:30 on November 1st. It is in the constellation *Taurus*, about 5° north and west of the first-magnitude star *Aldebaran*, and up to September 25th it moves about 1° eastward; then it begins to move westward, and by the end of October it has moved about 2° , retracing almost exactly its eastward path, occupying a position only 6' from that which it held on August 20th.

Saturn passed opposition on August 23d, and is therefore above the horizon nearly the entire night early in September. It sets about four minutes earlier each night, and by the end

of October it sets half an hour after midnight. It is on the border of *Aquarius* and *Capricorn*, and moves slowly westward about $2^{\circ} 30'$ until October 31st, when it becomes stationary. As there are no bright stars in that part of the sky, the planet can be easily identified, although it is not much brighter than a first-magnitude star.

Uranus is in the southwestern sky in the evening. It sets at about midnight on September 1st and at about 8 p. m. on October 31st. It is in *Sagittarius*, and moves slowly westward until September 9th. Then it begins to move eastward, making a little more than 1° by October 31st. The nearest bright star is the star in the end of the handle of the "milk dipper," and *Uranus* lies beyond that at about the same distance as the nearest star of the bowl, but in the opposite direction.

Neptune is in *Gemini*. It rises about 1 a. m. on September 1st, and a little before 9 p. m. on October 31st.
